



## REGULAR ARTICLE

# STUDIES ON ETHNOMEDICINE IN BULDHANA DISTRICT OF MAHARASHTRA (INDIA)

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## SUMMARY

The present paper deals with plants used in Buldhana district (Maharashtra), India. The ethnobotanical survey was carried out during 2007-2009 in different seasons. The tribal and rural folks although illiterate and socio-economically backward, they have rich traditions of ethnomedicines passed from one generation to another. Methodologies used to investigate ethnomedicinal claims include weekly regular visits, collections of information from tribal and rural medicinmen, other elderly persons and patients in the area under study. This paper includes ethnomedicinal revelations on 48 plant species belonging to 47 genera and 35 angiospermic families. Of these, ethnomedicinal claims from 39 species are unreported earlier from India. The local people have unique knowledge to cure as many as 31 different human diseases or disorders. The ethnomedicinal recipes are in the form of extract, juice, decoction, oil, powder and paste. Various domestic substances e.g. milk; ghee, jaggery, coconut oil, cloves, turmeric powder, etc. are also employed for preparing medicinal recipes. Nearly all aerial and underground parts are used in them. Medicinal plant knowledge of these local people will help reveal new methodology/ drugs for welfare of mankind. Further scientific investigations are desirable to verify their efficacy and toxicity.

**Key words:** Ethnomedicine, Traditional knowledge, Buldhana districts, India

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## 1. Introduction

The practice of using herbs to treat diseases dates back to the very earliest period of known human history. Due to constant intimacy with vegetation cover, primitive societies have gained profound knowledge about the medicinal utilities of plants. They have full faith in them and in their time- tested medicines. These medicinal plants obviously need correct botanical identity and other scientific confirmation for the facts and acceptance.

India lives in villages. The rural inhabitants and tribal primitive societies occupy a large part of Indian culture. There are 300 tribal communities which contribute the 8 percent of the total population of the country [1]. Till the close of sixth decade of the last century, there were no direct published reports of ethnomedicinal investigations except reports like those of [2, 3]. There are 47 tribal communities in

Maharashtra. The district Buldhana has considerable number of primitive people. The district has practically remained untapped for ethnomedicinal studies. It, therefore, appeared important to study and document the traditional information in the study area urgently in detail for a wider application in future.

The world is facing the problems of degradations of vegetation, loss of biomass and biological productivity, soil impoverishment, increase runoff and silting of water bodies, etc. [4]. On the onset of modernization, the forces of acculturation have increased tremendously which are depriving away the traditional knowledge of the primitive indigenous societies. Herbal medicines are in great demand in developed and developing countries in primary healthcare because of their great efficacy and little or no side effects.

Realizing the floristic richness, diversity and a fact to get substantial information pertaining to the ethnomedicinal remedies, surveys have been conducted during 2007 to 2009 to various corners of the districts. The results of our studies are being presented in this paper.

## 2. Study Area and People

Buldhana is one of the north-western district of Maharashtra state. It is situated between 19°51' and 21°17' north latitude and 75° 51' and 76°59' east longitude in Indian subcontinent (Map-I). The major part of the district is composed of rocks of Deccan Volcanic of Cretaceous-Eocene age and few many tributaries drain into these main rivers. The ranges of Satpura Mountain extend in the area. Most of the hill slopes are covered with forest and scrub vegetation. The forest,

in general, belongs to southern Tropical Dry Deciduous type. The reserved forest cover constitutes 1082.52 sq. km. and protected ones spread over 94.52 sq. km. Mixed forests are found in all parts. Teak, Anjan and Babhul form principal components of the vegetation alongwith other associates like species of *Diospyros*, *Pterocarpus*, *Lagerstroemia*, *Terminalia* *Anogeissus* *Dendrocalamus*, etc. The district enjoys tropical climate with three distinct seasons viz. summer, rainy and winter. The average rainfall annually is 796 mm. May is the hottest month with maximum temperature 47°C. December and January are the coldest months of the year with minimum temperature 11°C. The humidity is more than 70% in the monsoon months. It is relatively low in the summer [5].



Agriculture is the main occupation in the district. Apart from major rural population, primitive societies like Dom, Ghasi, Kotia, Kaikadi, Kodi, Basor, Bedar, Balahi, Dohar and the various artisan caste people viz., Beldar, Panchal, Pathrats, Ghisadi, Lohar, Sutar, Kumbhar, etc. cohabit in the district [5].

## 3. Methodology

The area under study was visited during 2007-2009. Regular visits per week were paid in different seasons. Usually heads of different rural and tribal communities, local medicinmen, elder persons, etc. were interviewed. The data obtained is noted using a specially prepared questionnaire and

also open discussion in different localities were held. Actual personal observations were also made during field studies. Information regarding the plants and parts or products, uses, local plant names, diseases, ethnomedicinal recipes, administration, etc. was documented. It was confirmed during subsequent visits. The voucher specimen were collected and identified by using various state, regional and district floras [6-13]. The herbarium specimens have been housed in the herbarium of the department of our college. The ethnomedicinal claims from the study area are compared with Indian classical literature [14-17] to earmark new reports.

#### 4. Enumeration

1. *Abelmoschus manihot* (L.) Medic. (Malvaceae) Ranbhendi (YAD 34): About two spoonfuls of root extract mixed in a cup of curd is consumed twice a day for a week to cure piles.
2. *Acanthospermum hispidum* DC. (Asteraceae) Gokharu (YAD 122): Seeds and rhizome of *Zingiber officinale* Rosc. are crushed and then boiled in water. A cup of decoction thus prepared is drunk before meal for 10- 15 days to cure kidney-stone.
3. *Achyranthes aspera* L. (Amaranthaceae) Aghada (YAD 227): Entire plants are dried under shade and then powdered. A spoonful of powder in honey is consumed daily once at morning for seven days to cure asthma.
4. *Annona squamosa* L. (Annonaceae) Sitaphal (YAD 11): A spoonful seed powder with some jaggery is consumed daily once before meal for 6-7 days to kill intestinal worms.
5. *Blepharis repens* (Vahl) Roth (Acanthaceae) Hadsan (YAD 14): Leaves, about 5 gm., mixed while preparing 'Chapati' made from wheat flour. It is consumed once daily for a week to cure bone fracture.
6. *Boerhavia diffusa* L. (Nyctaginaceae) Punarwel, Punarnava, Sathi, Ghotuli (YAD 344): Entire plants are dried and powdered. It is mixed in cow-ghee in 3:1 ratio and placed for one day in a red bottle under sunlight. It is then homogenized with cow's milk (1:1 ratio). This is applied on swollen organ once daily for 5-7 days.
7. *Caesalpinia bonduc* (L.) Roxb. (Caesalpiniaceae) Sagargoti (YAD 334): A cup of leaf decoction is drunk for 7-8 days to treat rheumatism.
8. *Capparis zeylanica* L. (Capparidaceae) Waghuti, Waghathi (YAD 209): Leaves of this plant and those of *Justicia adhatoda* L. (Acanthaceae) are cooked. They are wrapped on tumor for 5-8 days.
9. *Cassine albens* (Retz.) Kosterm. (Celastraceae) Bhutakhet (YAD 217): Root powder is boiled in cow's urine. It is applied on head at night for 3-4 days to treat fever.
10. *Celosia argentea* L. (Amaranthaceae) Shahu-mendha, Kurudu, Kombda (YAD 200): Boiled roots are extracted. Two spoonful of extract is administered twice a day for 3-4 days to treat jaundice.
11. *Centella asiatica* (L.) Urb. (Apiaceae) Bramhi, Bophali (YAD 224): Powder of entire plants mixed in cow's ghee is boiled slightly and filtered. It is stored in a red bottle for one day in sunlight. Ten drops of it in one cup of cow's fresh milk is advised twice daily for a month or more to treat mental retardness.
12. *Chlorophytum borivilianum* Santapau & Fernand. (Liliaceae) Safed Musali (YAD 385): A spoonful powder of dried root tubers in a cup of milk is consumed as tonic Twice a daily for a month especially during winter season.
13. *Cissampelos pareira* L. (Menispermaceae) Pandhra-vasu (YAD 385): Few root pieces are cooked with rice. It is consumed with cow's milk thrice a day for 15-18 days to cure jaundice.
14. *Corchorus depressus* L. (Tiliaceae) Harankhuri (YAD 268): Leaves, 4-5 gm., rubbed in curd and consumed for seven days before meal at morning to check bleeding during urination and sunstroke as well.
15. *Cuscuta chinensis* Lamk. (Cuscutaceae) Amarwel (YAD 136): Decoction of stem, coconut oil and leaf powder of leaves of *Lawsonia inermis* L. (Lythraceae) are made into paste. It is applied on head for about 15 days for controlling hair fall.
16. *Cynadon dactylon* Pers. (Poaceae) Durwa, Haral (YAD 300): Seed powder (3-4 gm.) is homogenized with honey. It is consumed daily at night for 15-21 days to maintain youthness.

17. *Dichrostachys cinerea* (L.) Wight & Arn. (Mimosaceae) Yelatur (YAD 181): Root powder is applied on gums daily for 4-5 days to reduce tooth-ache.
18. *Dolichandrone falcata* (Wall. ex DC.) Seem. (Bignoniaceae) Medshingi (YAD 215): A cup of leaf extract is administered for a month or more at morning for the sufferers of leprosy.
19. *Euphorbia neriifolia* L. (Euphorbiaceae) Sabar-kand (YAD 336): Spines of the green stem are removed. Paste of 'Bajara' flour (*Pennisetum americanum* L., Poaceae) and some asafoetida is applied on it. It is warmed and then extracted. A spoonful of extract thrice daily administered for 2-3 days for children to cure cough.
20. *Ficus benghalensis* L. (Moraceae) Wad (YAD 303): Newly born aerial roots are boiled in water. This decoction is applied on head daily once for 15-20 days as hair tonic.
21. *Ficus racemosa* L. (Moraceae) Umbar (YAD 245):
  - i) Latex is tapped before sunrise and mixed in cow's milk (1:5 ratio). About 3-4 spoonful of it is drunk once daily at morning for 3 or more days to cure jaundice.
  - ii) Latex obtained before sunrise is applied immediately on twisted part of body till cure.
22. *Hibiscus rosa-sinensis* L. (Malvaceae) Jaswandi, Ghanti (YAD 281): Flowers are dipped in coconut oil overnight. The oil is then applied on head at morning for 15 or more days as hair tonic.
23. *Holarrhena pubescens* (Buch.-Ham. ex G. Don (Apocynaceae) Indrajav (YAD 261): Seed ash (about 20 gm) mixed with jaggery is used to prepare pellets. Only total nine pellets are prepared. Three pellets a day for three consecutive days are advised for killing intestinal worms.
24. *Lantana camara* L. (Verbenaceae) Katmani (YAD 160): Leaf paste and jaggery in 1:1 ratio are used to prepare total seven pellets. One pellet a day is advised for a week at morning to cure piles.
25. *Limonia acidissima* L. (Rutaceae) Kauth (YAD 260): A cup of leaf juice and milk in 1:1 ratio is drunk twice daily for 2-3 days to treat sunstroke, body heat and acidity.
26. *Madhuca longifolia* (Koen.) Macbr. (Sapotaceae) Mahu (YAD 239): Seeds are decoated. Two seeds are wrapped in a betel leaf and consumed once daily for 4-5 days to better tonsils and throat swelling.
27. *Mangifera indica* L. (Anacardiaceae) Amba (YAD 449): Kernels of this plant and fruit wall of *Emblia officinalis* Gaertn. (Euphorbiaceae) in equal quantity are made into paste. It is applied on head for better hair growth on bald.
28. *Martynia annua* L. (Martyniaceae) Wagh-nakhi (YAD 194): Leaf juice (10 ml) is taken orally and also applied on stomach daily once for 5-7 days to kill intestinal worms.
29. *Mentha spicata* L. (Lamiaceae) Pudina (YAD 194): A cup of leaf juice and curd in 1:1 ratio is consumed at morning for 4-5 days to increase urination.
30. *Mucuna pruriens* (L.) DC. (Fabaceae) Kach-kuiri (YAD 207): Fruit hairs are homogenized with jaggery. Fourteen pellets are prepared. Two pellets a day are advised for a week before meal to kill intestinal worms.
31. *Nyctanthes arbor-tristis* L. (Oleaceae) Parijat (YAD 111): Leaves of this plant and those of *Vitex negundo* L. (Verbenaceae) are stored in a red bottle and kept in sunlight for a day. Decoction is then prepared from them. About 25 ml of decoction is drunk twice daily for 5-7 days to treat rheumatism.
32. *Nymphaea nouchali* Burm. f. (Nymphaeaceae) Kamal (YAD 225): Flower powder of this plant, sandal wood powder and camphor in 1:1:1 ratio are made into paste. It is

- applied on forehead daily once for 3-4 days to check migraine.
33. *Ocimum tenuiflorum* L. (Lamiaceae) Tulsi (YAD 141): Inflorescence is dried in shade and powdered. A spoonful of powder homogenized with honey is consumed thrice daily for 5-7 days to cure migraine.
34. *Opuntia elatior* Mill. (Cactaceae) Fanta, Niwdung (YAD 141): Some tissue is removed with the help of knife from the phyllode and the cavity or slit made. It is filled with some turmeric powder and warmed. It is then rubbed on knees to cure knee-ache once daily for 3-4 days.
35. *Pergularia daemia* (Forsk.) Chiov. (Asclepiadaceae) Utran (YAD 206): Root pieces, about 5 gm., are cooked with rice. It is consumed daily once at morning for seven days to cure jaundice.
36. *Phyllanthus amarus* Schumach. & Thonn. (Euphorbiaceae) Bhuiawala, Lekur-wali, Futane (YAD 130): The entire plants are used to prepare decoction. About 25 ml of it is administered to a patient daily once for a week or more to treat jaundice.
37. *Physalis minima* L. (Solanaceae) Dokephodi (YAD 266): A spoonful of leaf powder mixed in a cup of curd is consumed twice daily for seven days to cure piles.
38. *Psidium guajava* L. (Myrtaceae) Jam (YAD 451): Decoction of leaves is gargled at morning for a week to render gums stronger.
39. *Ricinus communis* L. (Euphorbiaceae) Erandi (YAD 451): Leaves are rubbed in cow-milk. A cup of it is drunk at morning for three or more days to treat jaundice.
40. *Salvadora persica* L. (Salvadoraceae) Pilu-kathar (YAD 273): Leaves are cooked and then wrapped around the knees daily for 5-7 days to treat arthritis.
41. *Semecarpus anacardium* L. f. (Anacardiaceae) Bibba (YAD 314): About 3-4 ml of seed oil is mixed in a cup of unboiled milk. It is drunk at night before sleep for 3-4 days to treat whooping cough.
42. *Solanum virginianum* L. (Solanaceae) Ringni (YAD 271): 2-3 gm. of seed powder homogenized with spoonful of honey is consumed once daily for seven days to treat asthma.
43. *Spilanthes calva* DC. (Asteraceae) Akkalkadha (YAD 283): Powder of flowers of this species and equal quantity of cloves, cardamon seeds and sugar are used to prepare decoction. A cup of it is administered daily once for three days to treat fever.
44. *Tamarindus indica* L. (Caesalpiniaceae) Chinch (YAD 228): Leaves are cooked with soil of ant-hill. This paste is applied on bone fracture daily once for 10-15 days.
45. *Terminalia arjuna* (Roxb.) Wight & Arn. (Combretaceae) Arjun-sadala (YAD 100): Bark powder is directly sprinkled or applied on injuries for 2-3 days daily once to avoid infection.
46. *Tinospora cordifolia* (Willd.) Miers. (Menispermaceae) Gulwel, Amrutwel (YAD 457): Stem of this plant and roots of *Cissampelos pareira* L. (Menispermaceae) in equal quantities are powdered. A spoonful of it is consumed at morning before meal for 21 days to cure anemia.
47. *Vitex negundo* L. (Verbenaceae) Nirgudi (YAD 463): Leaf decoction is added in bath water. It is used by the patient suffering from rheumatism for 7-10 days.
48. *Withania somnifera* (L.) Dunal (Solanaceae) Ashwagandha, Askand (YAD 307): Two spoonful of root powder is added in a cup of cow milk. It is drunk at morning for 21 days to treat nocturnal emission and to increase body strength.

## 5. Results and Discussion

This communication reports total 48 plant species belonging 47 genera and 35 angiosperm families ethnomedicinally useful in Buldhana district. Of these, dicotyledonous angiosperms constitute

considerable share in the ethnomedicine (46 species, 45 genera and 33 families). Monocotyledons are just two, being to equal number of genera and families. Of these total 48 taxa, trees are 15, shrubs 06, herbs 21, climbers and lianas 07 taxa. The flora of Buldhana district is predominantly herbaceous [13]. It is also to be noted that 35 taxa are exclusively wild, whereas 13 taxa are both wild and cultivated. These are administered in the form of medicinal recipes such as extract, powder, juice, paste, decoction, oil and pellets or sometimes simply wrapped around affected body parts. Certain domestic substances such as curd, milk, cow-milk (in some cases), cow-ghee, wheat and bajara flour, coconut oil, camphor, cloves, turmeric powder, jaggery, etc. Other plant species are also used traditionally as supplementary while preparing medicinal recipes e.g. *Zingiber officinale*, *Justicia adhatoda*, *Lawsonia inermis*, *Piper betel* (betel leaf), *Embllica officinalis*, *Vitex negundo* and *Cissampelos pareira*. Plant parts like roots, stem, leaves, phyllodes, flowers or inflorescence, fruits, seeds, fruit hairs, fruit walls, root tubers or even entire plants are used in medicinal preparation. Apart from these, plant products e.g. latex is also used. It is interesting to note that ethnomedicinal claims from 39 plant species (marked \*) in the enumeration are hitherto unreported from India.

The present study shows that the area under study is fairly rich not only in medicinal plant species but also having deeply rooted traditional of ethnomedicinal practices of the people. The fragile ecosystem of Buldhana district needs urgent care and sensitive handling. These claims, however, should be projected for chemical contents of the species used, their biological activities and pharmacological investigations on modern scientific lines. These may lead to divulge new molecule and help decipher efficacy and toxicity. Few taxa (asterisked under enumeration) are exotic and originally belong to various parts of the world such as West-Indies, Brazil, Mexico, China, Africa and other parts of Tropical America. They seem to be brought for the various purposes e.g. for edible fruits, oil, etc. or immigrated as

weeds by negligence very early in past [18-19]. One can reasonably imagine that on findings population of new /exotic plant species in their vicinity the folk and applied trial and error method, and discovered some uses for such plants. Such plants are fully integrated with the life-style of people of Buldhana district and are being used as noted. Comparative studies on these different regions on ethnomedicinal line may bring out some more interesting facts [20, 21].

The present authors are fully convinced that traditional ethnomedicinal remedies in the area are valid and reliable. Doses vary sometimes depending upon the age of sufferers. These treatments of diseases with plants and plant products also cause no side effect. These are cost effective too. There are some taxa over exploited due to lack of sustainable harvesting methods, inadequate knowledge about forest management and lack of financial resources.

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